

Ford Motor Company Long Beach Assembly Plant,
Assembly Building
700 Henry Ford Avenue
Long Beach
Los Angeles County
California

HAER No. CA-82-A

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Western Regional Office
National Park Service
U.S. Department of the Interior
San Francisco, California 94102

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Note: Photographs Nos. CA-82-A-48 through CA-82-A-94 are photocopies from negatives of the Ford Motor Company Assembly Plant at Long Beach. Photograph No. CA-82-A-48 was taken by A.C. Gates, ca. 1930. Photograph Nos. CA-82-A-49 through CA-82-A-94 were taken by Lawrence Inman between 1930-1946. The Gates and Inman negatives are curated at the Historical Society of Long Beach.

- CA-82-A-48 Neg. No. P-3120, ca. 1930, Photographer- A. C. Gates, Los Angeles, AERIAL VIEW OF THE FORD MOTOR COMPANY ASSEMBLY PLANT, PRIOR TO CONSTRUCTION OF THE PRESSED STEEL BUILDING, NOTE THE CLIPPER SHIPS IN THE BACKGROUND, AND THE OIL WELLS IN THE UPPER LEFT CORNER
- CA-82-A-49 Neg. No. 7268C, ca. 1930, Photographer- Unknown, OVERALL VIEW OF THE FORD MOTOR COMPANY ASSEMBLY PLANT FROM THE HENRY FORD BRIDGE, PRIOR TO CONSTRUCTION OF THE PRESSED STEEL BUILDING

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- CA-82-A-50 Neg. No. F-176B, Jun 5, 1936, EXTERIOR- FORD ASSEMBLY PLANT AT LONG BEACH, OVERALL VIEW OF PLANT FROM THE HENRY FORD BRIDGE, CERRITOS CHANNEL IN THE FOREGROUND
- CA-82-A-51 Neg. No. F-183E, Mar 16, 1937, EXTERIOR- FORD ASSEMBLY PLANT EAST SIDE, SHOWING OIL WELL #6 IN THE FOREGROUND, NORTHEAST OF THE ASSEMBLY PLANT
- CA-82-A-52 Neg. No.- none, ca. 1950's, Photographer- Unknown, AERIAL VIEWS OF THE FORD MOTOR COMPANY ASSEMBLY PLANT, SOMETIME AFTER THE ADDITION OF THE NORTHERN WING
- CA-82-A-53 Neg. No. F-69, Apr 21, 1930, EXTERIOR- OFFICE BUILDING, WEST (FRONT) AND NORTH SIDES, OPENING DAY
- CA-82-A-54 Neg. No. F-110P, Apr 24, 1931, EXTERIOR- PRESSED STEEL BUILDING, NORTH AND EAST SIDES, WAREHOUSE IN BACKGROUND, RAILROAD SPUR IN FOREGROUND, BONDERITE TANK AT LEFT
- CA-82-A-55 Neg. No. F-99D, Dec 27, 1931, EXTERIOR- PRESSED STEEL BUILDING, EAST SIDE, SHOWING EXTERIOR OF THE BONDERITE TANK
- CA-82-A-56 Neg. No. F-161, Mar 18, 1933, INTERIOR- OFFICE BUILDING, LOBBY AND STAIRWELL, SHOWING DAMAGE AFTER AN EARTHQUAKE
- CA-82-A-57 Neg. No. F-161D, Mar 18, 1933, INTERIOR- PRESSED STEEL AND WAREHOUSE BUILDINGS, 1ST FLOOR, SHOWING DAMAGE TO FREIGHT ELEVATOR SHAFT FROM EARTHQUAKE
- CA-82-A-58 Neg. No. F-160a, Jan 11, 1933, INTERIOR- OFFICE BUILDING/ ASSEMBLY BUILDING, FIRST AID ROOM
- CA-82-A-59 Neg. No. F-103, Mar 27, 1931, INTERIOR- WAREHOUSE, SOUTH END, INTERIOR OF THE BOILER ROOM
- CA-82-A-60 Neg. No. F-76A, Jun 24, 1930, EXTERIOR-WAREHOUSE, WHEEL SLING ON THE LOADING DOCK AND FORD SHIP

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- CA-82-A-61 Neg. No. F-99C, Dec 27, 1931, INTERIOR- PRESSED STEEL BUILDING, EAST SIDE FACING NORTH, SHOWING MACHINERY, CONVEYOR LINES, AND RAILROAD CARS
- CA-82-A-62 Neg. No. F-75A, Jun 18, 1930, INTERIOR-WAREHOUSE, 1ST FLOOR, STORAGE OF AUTOMOBILE COMPONENTS
- CA-82-A-63 Neg. No. F-70D, Apr 13, 1930, INTERIOR- WAREHOUSE, 1ST FLOOR ENGINE STORAGE
- CA-82-A-64 Neg. No. F-92, Dec 15, 1930, INTERIOR- PRESSED STEEL BUILDING, PRESSED STEEL MACHINERY
- CA-82-A-65 Neg. No. F-99, Dec 27, 1931, INTERIOR- PRESSED STEEL BUILDING FACING SOUTH TOWARD WAREHOUSE AND ASSEMBLY BUILDING 1ST FLOOR, EAST SIDE FACING SOUTH, SHOWING PRESSED STEEL MACHINERY AND RAILROAD CARS
- CA-82-A-66 Neg. No. F-110B, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, SHOWING PRESSED STEEL MACHINERY
- CA-82-A-67 Neg. No. F-110G, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, SHOWING PRESSED STEEL MACHINERY
- CA-82-A-68 Neg. No. F-110I, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, SHOWING PRESSED STEEL MACHINERY
- CA-82-A-69 Neg. No. F-110S, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, SHOWING PRESSED STEEL MACHINERY
- CA-82-A-70 Neg. No. F-110T, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, EAST SIDE, SHOWING MECHANICAL SYSTEMS, PRESSED STEEL MACHINERY, CONVEYOR LINES
- CA-82-A-71 Neg. No. F-110M, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, NORTHEAST END FACING SOUTH, SHOWING PRESSED STEEL MACHINERY
- CA-82-A-72 Neg. No. F-110J, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, SHOWING SANDING OF PRESSED STEEL FENDERS

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CA-82-A-73	Neg. No. F-110K, Apr 24, 1931, INTERIOR- PRESSED STEEL BUILDING, NORTHEAST END FACING NORTH, SHOWING FENDER PAINTING
CA-82-A-74	Neg. No. F-116A, May 22, 1931, INTERIOR- PRESSED STEEL BUILDING, SHOWING FENDER CRATE
CA-82-A-75	Neg. No. F-54, Apr 13, 1930, INTERIOR- OIL HOUSE, PAINT CIRCULATING SYSTEM
CA-82-A-76	Neg. No. F-58, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, BURNOFF, LOAD END OF ENAMEL OVEN
CA-82-A-77	Neg. No. F-65A, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, UNLOADING THE ENAMEL OVEN
CA-82-A-78	Neg. No. F-143A, Apr 1, 1932, INTERIOR- ASSEMBLY BUILDING, CONVEYOR LINE WITH CAR CHASSIS
CA-82-A-79	Neg. No. F-61A, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, BODY CONSTRUCTION
CA-82-A-80	Neg. No. F-60, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, HOOD CONVEYOR
CA-82-A-81	Neg. No. F-63, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, HOOD DEPARTMENT
CA-82-A-82	Neg. No. F-66A, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, TRIM LINE AND GLASS DEPARTMENTS
CA-82-A-83	Neg. No. F-53, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, BACK TRIM LINE
CA-82-A-84	Neg. No. F-62, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, FRAME AND MOTOR STORAGE CONVEYOR
CA-82-A-85	Neg. No. F-51, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, BODY AND CUSHION LINE

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CA-82-A-86	Neg. No. F-64, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, BODY STORAGE CONVEYOR
CA-82-A-87	Neg. No. F-74A, Jun 14, 1930, INTERIOR- ASSEMBLY BUILDING, BODY STORAGE CONVEYORS
CA-82-A-88	Neg. No. F-124, Jul 9, 1931, INTERIOR- ASSEMBLY BUILDING, SHOWING PARTIALLY ASSEMBLED CARS AND FENDER CONVEYORS
CA-82-A-89	Neg. No. F-126, Jul 21, 1931, INTERIOR- ASSEMBLY BUILDING, SHOWING HEADLIGHT TESTING BOOTH
CA-82-A-90	Neg. No. F-59A, Apr 13, 1930, INTERIOR- ASSEMBLY BUILDING, CHASSIS LINE, LOOKING SOUTH
CA-82-A-91	Neg. No. F-174A, Apr 24, 1936, INTERIOR- ASSEMBLY BUILDING, FINISHED CARS AT THE END OF THE ASSEMBLY LINE
CA-82-A-92	Neg. No. F-142, Mar 29, 1932, INTERIOR- ASSEMBLY BUILDING, STAGE AND EXHIBITION ROOM
CA-82-A-93	Neg. No. F-78K, Aug 11, 1930, EXTERIOR- ASSEMBLY BUILDING, NORTH SIDE, WITH TAYLOR-TRUCK-A-WAY TRUCKS AND TRAILORS
CA-82-A-94	Neg. No. F-130, Sep 24, 1931, EXTERIOR- OFFICE BUILDING AND ASSEMBLY BUILDING, WEST SIDE, SHOWING TRUCKS AND TRAILORS LOADED WITH NEW TRUCKS DISPLAYING SIGNS "MORE FORDS FOR HOOVER DAM"

Note: Photograph Nos. CA-82-A-95 through CA-82-A-125 are photocopies of architectural drawings of the Ford Motor Company Long Beach Assembly Plant. Photograph Nos. CA-82-A-95 through CA-82-A-124 were produced by Albert Kahn, Inc., Architects, Detroit Michigan, ca. 1927-1930. The original drawings are curated at Albert Kahn Associates, Inc. New Center Building Detroit Michigan 48202. Photograph CA-82-A-125 is a drawing on file at the Port Of Long Beach (LBP), Los Angeles County, California.

CA-82-A-95	JOB NO. 1347-F, SHEET 1, 1927/1931, PLOT PLAN, ASSEMBLY BUILDING FOR FORD MOTOR COMPANY, LONG BEACH, CALIFORNIA
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CA-82-A-96	JOB NO. 1347-F, SHEET 6, 1927/1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; NORTH, EAST, AND SOUTH ELEVATIONS
CA-82-A-97	JOB NO. 1347-F, SHEET 5, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; ELEVATIONS AND DOOR DETAILS
CA-82-A-98	JOB NO. 1347-F, SHEET 7, 1927/1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; EXTERIOR DETAILS
CA-82-A-99	JOB NO. 1347-F, SHEET 14, 1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; OFFICE SECTIONS AND DETAILS
CA-82-A-100	JOB NO. 1347-F, SHEET 13, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; DETAILS OF OFFICE AND SECTIONS
CA-82-A-101	JOB NO. 1347-F, SHEET 3M, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; ONE-EIGHTH SCALE OF OFFICES
CA-82-A-102	JOB NO. 1347-F, SHEET 3, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; FIRST FLOOR PLAN
CA-82-A-103	JOB NO. 1347-F, SHEET 4, 1927/1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; ROOF PLAN CROSS SECTION AND DETAIL
CA-82-A-104	JOB NO. 1347-F, SHEET 5S, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; LONGITUDINAL SECTION AND TRUSS DETAILS
CA-82-A-105	JOB NO. 1347-F, SHEET 15, 1927/1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; MISCELLANEOUS DETAILS
CA-82-A-106	JOB NO. 1347-F, SHEET 9, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; TOILET- SECTION AND DETAILS
CA-82-A-107	JOB NO. 1347-T, SHEET 1S, 1930, FORD MOTOR COMPANY; REINFORCEMENT OF GRAVITY TANK
CA-82-A-108	JOB NO. 1347-F, SHEET 17, 1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; TUNNEL, TRUSSES UNDER TANK, ETC.
CA-82-A-109	JOB NO. 1347-F, SHEET 8S, 1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; TRANSVERSE SECTION OF WAREHOUSE

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- CA-82-A-110 JOB NO. 1347-F, SHEET 11, 1927, ASSEMBLY BUILDING; FORD MOTOR COMPANY; WAREHOUSE SECTION AND DETAILS
- CA-82-A-111 JOB NO. 1347-F, SHEET 12, 1927/1929, ASSEMBLY BUILDING; FORD MOTOR COMPANY; WAREHOUSE DETAILS
- CA-82-A-112 JOB NO. 1347-F, SHEET 16, 1929/1930, ASSEMBLY BUILDING; FORD MOTOR COMPANY; FREIGHT ELEVATOR DETAILS
- CA-82-A-113 JOB NO. 1347-K, SHEET 2M, 1929, FORD MOTOR COMPANY; BOILER HOUSE ASSEMBLY PLANT; SECTIONS
- CA-82-A-114 JOB NO. 1347-K, SHEET 1M, 1929, FORD MOTOR COMPANY; BOILER HOUSE ASSEMBLY PLANT; PLAN
- CA-82-A-115 JOB NO. 1347-K, SHEET 3M, 1929/1930, FORD MOTOR COMPANY; BOILER HOUSE ASSEMBLY PLANT; BOILER SETTING
- CA-82-A-116 JOB NO. 1347-M, SHEET 4, 1930, ADDITION FOR PRESSED STEEL DEPARTMENT FOR THE FORD MOTOR COMPANY; ELEVATIONS, DETAILS
- CA-82-A-117 JOB NO. 1347-M, SHEET 5, 1930, ADDITION FOR PRESSED STEEL DEPARTMENT FOR FORD MOTOR COMPANY; NORTH ELEVATIONS DETAILS
- CA-82-A-118 JOB NO. 1347-M, SHEET 2, 1930/1931, ADDITION FOR PRESSED STEEL DEPARTMENT FOR FORD MOTOR COMPANY; FIRST FLOOR PLAN
- CA-82-A-119 JOB NO. 1347-M, SHEET 6, 1930, ADDITION FOR PRESSED STEEL DEPARTMENT FOR FORD MOTOR COMPANY; ONE-FOURTH INCH ELEVATIONS, TRANSFORMER, DETAILS
- CA-82-A-120 JOB NO. 1347-M, SHEET 7, 1930, ADDITION FOR PRESSED STEEL DEPARTMENT FOR THE FORD MOTOR COMPANY; SECTION AA AND ROOF DETAILS
- CA-82-A-121 JOB NO. 1347-E, SHEET 7S, 1929, DOCK DESIGN FOR FORD MOTOR COMPANY; SECTIONS AND DETAILS

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- CA-82-A-122 JOB NO. 1347-E, SHEET 3S, 1927, DOCK; FORD MOTOR COMPANY;
DECK PLAN OF DOCK
- CA-82-A-123 JOB NO. 1347-A, SHEET 4, 1927, POWER HOUSE; FORD MOTOR
COMPANY; NORTH, SOUTH, EAST, AND WEST ELEVATIONS
- CA-82-A-124 JOB NO. 1347-A, SHEET 6, 1927, POWER HOUSE; FORD MOTOR
COMPANY; SECTION BB AND DETAILS
- CA-82-A-125 JOB NO. LINE 5044, INTERNATIONAL RECTIFIER CORP.,
RACHELLE LABORATORIES, INC., LONG BEACH, CA, BY J.C.
FULTON, SEPTEMBER 1982, LINE 5044, CLIFTON AND CO., ON FILE
ENGINEERS DEPARTMENT, PORT OF LONG BEACH

Note: Photograph Nos. CA-82-A-126 is a photocopy of an architectural drawing of the Ford Motor Company Long Beach Assembly Plant. It is an 8 x 10-inch enlargement from a 4 x 5-inch negative. The original drawing is housed at the Ford Industrial Archives; 26305 Glendale; Redford, Michigan 48239.

- CA-82-A-126 JOB NO. X9-8396, PLANT LAYOUT, FORD MOTOR COMPANY LONG
BEACH ASSEMBLY PLANT, MARCH 1940.

Note: For additional written historical and descriptive information, please see main entry for the Ford Motor Company Long Beach Assembly Plant, HAER No. CA-82.

Also see Field Notes, HAER No. CA-82, which include vellum copies of Albert Kahn drawings, David De Vrles field notes on modern photographs, 35 mm modern photographs, and xerox copies of historic photographs, plans and historical research.

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HISTORIC AMERICAN ENGINEERING RECORD
FORD MOTOR COMPANY LONG BEACH ASSEMBLY PLANT, ASSEMBLY BUILDING

HAER No. CA-82-A

Location: 700 Henry Ford Avenue, Port of Long Beach,
County of Los Angeles, California

USGS Quadrangle: Long Beach, CA
UTM Coordinates: 11.385290.337030

Date of Construction: 1929-1930

Architect: Albert Kahn, Inc., Detroit MI

Contractors: General Contractor: Clinton Construction Co.
Brick Supplier: Gladding, McBean and Company

Present Owner: Port of Long Beach
P.O. Box 570
Long Beach, CA 90801

Present Use: Demolished, October 1990 - January 1991

Significance: Ford Motor Company built the Long Beach Assembly Plant during 1929-1930 as one of six contemporaneous assembly plants constructed in the United States. The overall purpose of these plants was to expand production of Ford's Model A, which replaced the Model T in 1927. Albert Kahn, the architect for the Long Beach Assembly Plant, also designed the other five Ford Assembly Plants. The Long Beach Assembly Plant was the only plant outside of Michigan to have a Pressed Steel Department as an integral part of the manufacturing and assembly process. Kahn's architectural design incorporated an enormous articulated structure that retained aesthetic qualities, yet permitted functional use of space. The Long Beach Assembly Plant operated until 1958 and typified the Ford Assembly Line concept. On a national scale the Long Beach Assembly Plant reflected a national trend of industrial growth, mass production of consumer goods, and the consumption of those goods.

Project Information: The former Ford Motor Company Long Beach Assembly Plant was evaluated eligible to the National Register of Historic Places (NRHP). The Port of Long Beach sought to redevelop this property, ultimately resulting in plans to demolish and

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remove all vestiges of this plant. The Port of Long Beach's application for a 404 Permit from the U.S. Army Corps of Engineers, Los Angeles District, invoked the Section 106 Process. A Memorandum of Agreement (MOA) signed by the U.S. Army Corps of Engineers, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation mandated Historic American Engineering Recordation (HAER) documentation of the the Ford Motor Company Long Beach Assembly Plant. The Port of Long Beach retained Chambers Group, Inc. to document the plant.

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Date:

June 1991

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PART I HISTORIC NARRATIVE

See Part I, Historic Narrative, Ford Motor Company Long Beach Assembly Plant, HAER No. CA-82, pages 64 through 100.

PART II ARCHITECTURAL DESCRIPTION

A. FORD MOTOR COMPANY LONG BREACH ASSEMBLY PLANT

The Ford Motor Company Assembly Building in Long Beach, California is a structure of 437,169 square feet, designed by Albert Kahn in 1927, and built 1929-1930 (Figure 1). It is comprised of four inter-related components; the Office Building, the Assembly Building (Figures 4B and 4C), the Warehouse Building, and the Pressed Steel Building. The Pressed Steel Building, although technically an addition, is a seamless expansion of the warehouse space, so that it appears to be one with the building. In 1930, an Oil House designed by Albert Kahn's office to store combustible fluids was added as a separate pavilion (CA-82-B-1 through CA-82-B-8). In 1947 drawings were prepared by the Albert Kahn office for a Pump House, located next to the Oil House and to the south of the Assembly Building. Both the Oil House and the Pump House, and the tunnels which connected them to the Assembly Building, have been demolished. The foundations of the these buildings and sections of the floors remain. In 1950 a structure designed to house road ability test equipment was added to the west face of the northern end of the Assembly Building (Figures 4B and 4C).

B. OFFICE BUILDING

The Office building, which lies at the extreme northwest corner of the plant, is a brick structure of about 14,530 square feet (CA-82-A-1 and CA-82-A-2). A partial second floor of 5,230 square feet completes the building. The offices have been substantially remodelled since the building opened, both by Ford and subsequent occupants of the building. Much of the subsequent alterations appear temporary and cover many existing elements of the original design.

As originally conceived by Albert Kahn, the Office Building served not only as the management and administrative heart of the plant operation, but also as the formal public face of Ford Motor Company in Long Beach (CA-82-A-97 through CA-82-A-101). The main part of the office structure is a two-story brick pavilion twice as long as it is deep. This strong asymmetric massing effectively shields the enormous bulk of the buildings beyond. Set back more than three feet from the front elevation is an additional office wing which in its design sets up the rhythmic pattern to be repeated in the Assembly Building, which connects to the south. On the north side, the building again steps back more than five and one half feet, to the original service garage. It is interesting to note that this most public corner contained the automobile showroom. Much of the architectural detail of this corner has been lost through later remodelling efforts and the addition of a one-story Dynamometer Building to the immediate north of the original Office Building.

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The original, two-story Office Building was divided into five bays on the west, with the main entrance in the fourth bay (CA-82-A-100 and CA-82-A-101). On the north the building is constructed in two bays. These bays are separated by three and one half foot brick piers. The corners of the building are defined by five foot eight inch wide articulated pylons. The windows, which are slightly recessed behind the pylons and piers, were originally divided into three sections by metal mullions (CA-82-A-1). The central light was twice as wide as its two facing sides. The sill was a simple slab of limestone. Above the windows and their articulated wooden header were four equally sized hinged wood transoms with wood mullions. On the second floor, the windows continue the rhythm set up by the transoms. Here they are equally divided into four wood-sash, double-hung windows. Again the sills are limestone. To the south of this two-story pavilion are an additional four bays of offices. The first bay, set back almost three and one half feet, contains four wood windows, and the remaining three bays have five. These windows are detailed the same as the second floor. Today, the large metal frame windows are gone and have been replaced with four equally sized wood sash windows, matching the windows above. The windows on the upper floor have been screened with aqua-colored expanded metal. The spandrel panel, which separates the two rows of windows and framed by the piers, contains a complicated pattern of red and green tiles. These tiles, set at 45 degrees, and composed of both rectangular and square tiles, is a major decorative element on this facade. The piers have a simple articulated limestone capital, which in turn supports a plain limestone frieze that completely surrounds the building. Each pier has a low granite base, and there is a granite base beneath the windows. The decorative panels which separate the first and second floors are formed by a soldier course of buff-colored brick above the windows. The panels are framed in soldier coursing, with square tiles in each corner. The second floor windows have a limestone sill, supported by bricks set to resemble a Greek dental key. The roof is red spanish tile. The silhouette of the original sign, "Ford Motor Company," can be seen on the limestone frieze, on the west side of the building. The front door, which appears to be original, is protected by a shallow steel awning with a decorative filigree along the edge. The awning is painted. The front door is on the west side of the Office Building. For the most part the office interiors are straight forward and utilitarian. On the ground floor is a double-loaded corridor with managerial offices against the exterior wall. Support staff shared larger offices on the interior wall, with wire glass windows looking into the Assembly Building. The hall partitions have a wood base and wood wainscoting, up to a height of almost four feet. Above that are glass partitions to a uniform header of nine feet. Above the header are glass transoms. The doors to the offices have a glass panel above and wood below, in line with the wainscot. The office interior walls continue the wood wainscot with plaster above. The partitions between the offices are of the same wood dado and glass assembly as the corridor walls (CA-82-A-17A).

It is in the public spaces that the architect engaged in a bit of fantasy. In the Office Building lobby and especially in the large showroom, the design inspiration appears to be

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Italian Renaissance. The ceilings of the showroom and of the lobby are highly articulated. The piers support three-foot steel beams, which have been clad in plaster. Between the beams are one-foot wide by six-inch deep plaster beams, three feet on center. These joists are not structural. The walls are coated in 3/4 inch plaster, and there is a tile base. The original architectural drawings indicate a highly ornate wood and leaded glass door with wood and glass side lights at the entrance to the sales office at the south end of the showroom. The doors and side lights had carved panels below with thirty small glass panes in the door and twenty on each side. An intricately carved wood header with four urn-shaped finials was set against a plaster half-round above. Similarly detailed doors, but without the crown molding and plaster detail, provide an entrance to the lobby.

The lobby is a rectangularly shaped room formed by the two southernmost bays of the two-story pavillon. The entrance is in the center of the left bay. A pink marble stair rises centered on the middle pier (CA-82-A-16 and CA-82-A-17). The stair is designed in three bays. The central bay rises from the ground floor to a landing against the back wall. From here, the stairs divide, going up each of the outside bays.

To the south of the stair on both floors are toilet rooms. On the first floor, there is a small women's toilet room, and a larger men's toilet room. On the second floor there is a men's toilet room. In all of these rooms, the toilet partitions, urinal screens, and splashes are detailed in the same pink marble as the lobby stair.

The second floor of the Office Building was originally one big open room. Although there is a series of temporary partitions in the space today, the open feel is still evident. In addition to the men's room on that floor, there is an eleven by nineteen foot vault and a stationery supply room of the same size. The open office had a linoleum floor, the stationery room and vault had cement floors, and the men's toilet room was terrazzo.

The ratio of women's toilet facilities to men's indicates the shift in the ratio between men and women in the workplace. In the original Office Building, there were two toilets and two sinks for women, and there were five toilets, five sinks, and four urinals for men. Interestingly, the women's facilities were located on the first floor, with no women's facilities on the second.

The Office Building, as well as the entire plant exhibits a fire-sprinkler system (CA-82-A-19). The public rooms (i.e., the automobile showroom and the lobby) appear to be heated through floor-mounted bronze registers, symmetrically located at the center line of each window.

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Today, most of the decorative detail of the Office Building's interior is lost. Reorganization by Ford and subsequent users have altered much of the interior of the building. Although the structural integrity of the building remains intact, much of the decor is gone, and there was little evidence of original hardware or fixtures. Small amounts of panelling remain, but much of the glass has been replaced. On the exterior of the building, the brick and decorative tile are in good condition, conveying a clear picture of the original structure. Most of the ground floor windows appear to have been altered and replaced, and the second floor windows are veiled behind expanded metal panels. Individual air conditioning units have been placed in many of the transoms. Although the front door is original, its slide lights have been changed to aluminum frame windows.

C. ASSEMBLY BUILDING

The Assembly Building is 405,270 square feet (Figures 4B and 4C). It extends southward from the Office Building a distance of 740 feet, separated into 37 20-foot bays. It extends east from the Office Building 215 feet in five 43-foot bays. Although a series of partitions now divides the space, the Assembly Building was originally conceived by Albert Kahn to be a vast, open room to allow for complete flexibility in the arrangement of Ford's assembly lines. Today, no assembly line apparatus remains. The structural system is organized into 40 by 443 foot structural bays. The columns are 8 inch by 8 inch I-section steel. Mechanical services are furnished on the face of the columns. Connecting the columns in each direction are trusses four and one half feet deep (CA-82-A-35).

Spanning the 40 foot bay direction and running from east to west in the Assembly Building are a series of sawtooth skylights with a northern exposure, shedding natural light into the vast interior (CA-82-A-5 and CA-82-A-6; CA-82-A-34 through CA-82-A-37). These sawtooth skylights rise a clear nine feet from the top cord of the truss, exposing a continuous ten-foot high clerestory running almost 150 feet. These monitors were also operable, with centrally located control panels on a line of columns running down the center of the Assembly Building from north to south. The operable monitors allow the introduction of fresh air to the facility. Along the top of these monitor are a series of 8 inch channel purlins which support the roof deck assembly, which appears to be covered or sheathed with a corrugated asbestos material. A limited number of overhead tracks, supported by the trusses, are still visible, but it is impossible to determine the arrangement of the assembly lines. The trusses which support the roof and monitor system are large enough to support substantial loads necessitated by the assembly line (CA-82-A-34). The entire structural system appears to be both lightweight and phenomenally flexible. This flexibility is reflected in the constant re-use and re-organization of the work space below.

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Suspended above the main assembly floor are eight 40 by 20 foot toilet rooms (CA-82-A-27). These mezzanine facilities were kept clear of the main floor to allow ultimate flexibility. As subsidence occurred, an additional benefit of the vertical separation was realized. As long as the public level was above sea level, it remained simple to drain.

The mezzanine toilet rooms are reached by one staircase at one end of the platform. Many of these stairs no longer exist. Open lockers for the storage of personal belongings and a section of compartmentalized toilets and trough urinals are arranged on the mezzanines (CA-82-A-28 through CA-82-A-30). The toilet partitions are of the same pink marble visible in the Office Building lobby. The wall systems for these mezzanine toilets are constructed of plate steel with a rivet and bolt attachment to a truss structure. At the top of the panels is an opening which allows views into the assembly area below.

Virtually all of the structural steel in the Assembly Building appears to be in sound condition (CA-82-A-33). It has been well maintained and painted. The rivets and bolts appear secure. The floor, which is concrete, is largely intact but scarring, cracks, holes, and curbs are apparent. There are two gravity slides visible from the adjoining warehouse building near the roof of the east side of the Assembly Building.

The exterior of the Assembly Building is brick (CA-82-A-1 through CA-82-A-3). From north to south the elevation has been divided into 20-foot bays. Each bay is separated by a brick pier of the same architectural design as the Office Building. The entire west elevation including the Office Building contains 47 bays, associated with column lines twenty feet on center. Between columns 10 and 11, at the junction of the Assembly Building with the Office Building, is a brick pavilion formed by extending the brick piers two feet higher than the adjoining roof. Centered near the top of these piers or pylons are red or green decorative tiles. Spanning the top is a stone coping, under which is a spandrel with a decorative arrangement of colored tiles similar to that seen on the Office Building. Between these pylons is a wood and glass double door and a glass transom. The doors are wide enough to accommodate vehicular entrance to the Assembly Building. The bases of the pylons are protected with bullet-shaped cast iron wheel-guards. This pavilion arrangement is repeated between column lines 16 and 17, 24 and 25, 32 and 33, 40 and 41, and again at the extreme south of the building between 46 and 47, making a total of six pavilions with carriage doors.

The rest of the bays are indicated with smaller three and one half foot piers with the same decorative tile centered near the top. The decorative tile work is repeated along the entire western side of the Assembly Building. Above the brick sill are steel sash windows with operable panels. The sash assembly is ten feet high by sixteen feet long and is repeated at every bay. The unusually large amount of window opening gives an exceptional lightness to what otherwise might be a very long and heavy elevation.

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The articulation of the piers and pylons at the 20-foot interval reestablishes and emphasizes the classical detailing apparent in the Office Building. The decorative tile and colored tile inserts provide additional design and relief from the monotony of the building on the "public front." The sawtooth monitors are not apparent from the front of the building, since they are set back almost ninety feet from the front or western wall. The brick work appears to be in fairly good condition. The steel sash appears to be only slightly damaged, with broken panes, painted lights, and some corrosion. The electric mechanism which operates the windows is not functioning.

The decorative arrangement of the western facade of the Assembly Building is simple and restrained (CA-82-A-1). Although the facade is without frivolity and needless expense, it presents a dignified and prosperous face to the public. The northern elevation of the Assembly Building repeats some of the elements of the western elevation or side. However, this elevation is far more utilitarian. With the exception of a single decorative pavilion with a carriage entrance at the extreme east which duplicates the pavilions on the west, there is no other decorative tile. Here, of course, the bases are slightly wider, which allows even more light to penetrate the Assembly Building through the operable steel sash. There are additional vehicular entrances to the Assembly Building, but these are not indicated by any clear change in the elevation elements.

An addition to the Assembly Building has been made at this north end (CA-82-A-14). This Dynamometer Building, built ca. 1950, is without architectural distinction. Subsequent users after the Ford Motor Company have partitioned this space into offices and laboratories.

D. WAREHOUSE BUILDING

Flush with the south and east sides of the Assembly Building and Pressed Steel Building and extending eastward 85 feet is the two story Warehouse Building (CA-82-A-6, CA-82-A-7, and CA-82-A-10 through CA-82-A-13). This building continues the pattern of structural bays established in the Assembly Building. The area of the Building is 74,800 square feet, with 37,400 on each floor. The original structural drawings indicated that the Warehouse extends beyond the original dike and is built on the new pier facility (CA-82-A-95 through CA-82-A-97). To the east of the warehouse is the pier. Decades of subsidence are evident in the three successive sea-walls which protect the facility. From north to south the Warehouse Building extends for a total of 22 20-foot bays. Originally, on the north end was a tall folding door to allow the penetration of railroad cars into the facility. The depressed railroad tracks, designed to keep the freight car floor level with the assembly floor, extends into the facility one hundred feet (CA-82-A-25). At the southern end of the Warehouse Building is the boiler-room and electric room, and, upstairs, various toilet

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facilities. There is also an enclosed staircase. At the north end, where the warehouse joins the Pressed Steel Building and the Assembly Building is a freight elevator.

Where the Warehouse Building joins with the Assembly Building, there are no partitions (CA-82-A-26). Within the warehouse, Albert Kahn has increased the structural elements of the building. An additional column has been placed halfway in the center of each forty-foot bay, creating a structural bay of 20 feet by 43 feet. This structural system results in a line of columns running down the center of the Warehouse Building. These columns support both the second floor and the two five-ton cranes mounted on rails supported by brackets from the columns. The distance from the ground floor to the underside of the cranes is 24 feet, with an additional 11 feet to the underside of the second floor.

On the dock side of the Warehouse Building, each twenty-foot bay is defined by a brick pier similar in design to the rest of the building (CA-82-A-33). Between these piers is a vertical sliding vehicular door. All of these doors, which are wood and glass, were electrically operated at one time. When open, these doors would allow direct access from the pier, and presumably the barges alongside, to the warehouse. The floor in the warehouse is concrete, and is level with the dock. Original drawings indicate that this floor was paved with wood block.

On the first floor there is a continuous clerestory above the roof-line of the Assembly Building, where it abuts the Warehouse Building (CA-82-A-50). Natural light is introduced to this vast space through the clerestory and through the glass lights in the roll-up doors, as well as through the clerestory above them.

The structural system, all of which is visible, is a series of 18 inch wide flange steel columns supporting three and one-half foot steel girders. Perpendicular to the girders are two-foot steel purlins, 11 feet on center. These support a poured concrete floor on which are end-cut redwood blocks. Many of these blocks are damaged or missing. The second floor of the Warehouse Building is clear span, with no central columns (CA-82-A-44 through CA-82-A-47). Spanning the 85-foot width of the Warehouse are two rolling five-foot cranes supported by rails and brackets on the exterior wall (CA-82-A-45). The clear distance from the floor to the crane is 24-feet, with an additional seven feet two inches above the crane to the lower cord of the truss system which supports the roof. The roof itself is sheathed with corrugated asbestos.

On the dock side of the Warehouse Building is a cantilevered deck, level with the second floor, 16 and one half feet wide (CA-82-A-10 through CA-82-A-12). A dilapidated metal stairwell is located at the north end of the deck connecting with the ground surface (CA-82-A-11). This deck is supported by tapered cantilevered beams. Between each brick pier are overhead doors 12 feet tall by 16 feet wide. These wood and glass doors match those

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on the lower level. There are 20 of these roll-up doors on each level. On the long wall facing the Assembly Building are continuous steel sash windows, from a sill at six feet nine inches from the floor, rising almost continuously 19 feet (CA-82-A-5 and CA-82-A-7). These windows run the entire length of the building, separated only by steel structural columns at 20-foot intervals. The steel sash windows are continuous on the dock side of the building above the roll-up doors. Cross-bracing is evident in the three central bays of the structure.

The clear span of glass on both the east and west sides of the Warehouse Building, and the enormous scale of the structure, create an environment of remarkable beauty (CA-82-A-48 through CA-82-A-50). The simplicity of the design and the elegance of the architectural detailing contribute to this effect.

While the long elevations of the Warehouse Building appear to be lightweight, the short ends are very substantial (CA-82-A-7 and CA-82-A-12). The predominant material is brick, which matches the materials on the rest of the building. The aesthetic quality is decidedly a late nineteenth century American industrial style. The brick detailing is traditional, as are the discrete steel sash windows. The original architectural drawings indicate cross-bracing at the second level. It was clearly Albert Kahn's intention that these massive brick ends would serve as seismic shear (CA-82-A-47). These ends are thoroughly tied to the rest of the steel structure, which conceptually serves as a rigid frame. It is without a doubt the inherent flexibility of the steel which has preserved the structural integrity of the building through several substantial earthquakes in the Long Beach area.

A nine-inch steel I-beam monorail runs around the outside of the entire Warehouse Building, about three feet above the header of the second story windows. The purpose of the monorail is unclear, but it may have included (CA-82-A-7) window-washing equipment or equipment rigging during major equipment installation or removal.

The Warehouse Building's steel framing was hidden behind the exterior curtainwall of brick, with extensive glass and steel fenestration. All exterior brick is sandy yellow, laid in common bond with virtually no decorative horizontal rows except at the decorative tile bands described above. On the long elevations the glass and steel windows on each floor cover more than half of the elevation. On the short sides, the somewhat undulating curtainwalls create a distinctive envelope for the building, with piers articulating rhythmic vertical proportions. A plain concrete frieze which doubles as a header over the steel sash windows is continued across the piers.

Although most of the electrical system is either gone or non-functional, there is evidence of an extensive array of elevated distribution and power cabinets stemming from an electrical room adjacent to the boiler room, situated at the southern end of the building

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(CA-82-A-36 and CA-82-A-37). Power distributed in this network operated manufacturing equipment and motors to run the cranes, elevators, elevator fans, drive-in lift doors, and the movable monitor sash. Pairs of sash motors operated chained drive opening mechanisms. Most wiring was elevated under roof trusses, interior bridges, and ceiling beams.

It appears that all water consumed in the facility or used for manufacturing, heating, or fire protection, passed through the boiler room (CA-82-A-42 and CA-82-A-43). Pipes are generally elevated within the Assembly Building, reaching sprinklers, toilet and washroom facilities.

A total of six overhead cranes were used for movement of equipment or large auto assembly components within the Warehouse Building (CA-82-A-31). Two five-ton bridge cranes operated in each of the interior crane-ways, supported by 24-inch I-beams suspended 24-feet above the first floor. In addition to this equipment, there is a Gantry crane on the east side of the warehouse for the apparent purpose of unloading barges (CA-82-C-1).

E. PRESSED STEEL BUILDING

In July of 1930, the Albert Kahn office prepared drawings for a 41,280 square foot addition to the Assembly Plant (CA-82-A-116 through CA-82-A-120). This new Pressed Steel Building extends the Warehouse Building to the north, 480 feet (CA-82-A-12 through CA-82-A-15; CA-82-A-51; CA-82-A-54). The north-south structure continues the structural system, set up in the rest of the building, of 20-foot bays. In the east-west direction, the building is divided into two 43-foot bays. The architectural drawings indicate that elements on the north elevation of the Warehouse Building, such as the railroad doors and two other vehicular entrances, were saved and re-used in the new north elevation of the Pressed Steel Building. By extending the Warehouse Building, the new Pressed Steel Building encloses an additional 480 feet of railroad tracks which penetrated the Warehouse 100 feet. The new floor, which was originally covered with wood block, is level with the Warehouse Building and the Assembly Building situated to the west.

This original exterior wall of the Assembly Building, on the east side adjacent to the new Pressed Steel Building, has been removed, and the structure is exposed as it is throughout the entire facility. According to the drawings, it was the intention of the architect that 20 of the existing overhead roll-up doors from the Assembly Building be re-used in the new east facade of the Steel Building. The result is that there is a seamless integration of the Pressed Steel Building to the existing Warehouse (CA-82-A-26). The appearance and details of the roll-up doors and the steel sashes are identical.

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Unlike the Warehouse Building, the Pressed Steel addition is one story. The building rises 36 feet, to a hip roof of corrugated asbestos, which rises to a central peak of 49 feet. As in the Warehouse Building, the central line of columns in concert with the perimeter structure, support one five-ton crane in both 43-foot bays (CA-82-A-24). The structural assembly for the cranes is the same as in the Warehouse Building, supported on brackets with rails.

The structural system appears to be tied to and an extension of the light-weight steel structure of the entire facility. Albert Kahn's ability to maintain long spans, open floor area, and structural integrity in all directions provides without a doubt an extraordinary structural and functional flexibility to the facility.

At the intersection between the Pressed Steel Building and the Warehouse Building is the existing elevator shaft (CA-82-A-24 through CA-82-A-26). This brick structure, rising to a height of 70 feet, is unaffected by the addition. In fact, the addition may have resulted in making the elevator more central to operations. The Pressed Steel Building also incorporates two new mezzanine-level toilet facilities of similar design to the existing facilities throughout the plant. There appears to be the addition of a gang-shower facility in one of the toilet facilities.

In the years of its active use, the Pressed Steel facility has been altered to reflect changes in the management, organization, and function of the plant. A lunchroom or cafeteria facility, which appears to date from the time of Ford's operation of the plant, together with a kitchen, pantry and store-room, exists in the extreme north-east corner of the Pressed Steel Building (CA-82-A-23). The overhead doors suggest that in fine weather the facility could extend onto the dock to allow the workers to dine al fresco. A cafe of more recent use exists at the north end of the Assembly Building, to the west of the sunken railroad tracks. Other recent additions include a car-painting facility, which post-dates Ford. The original drawings indicate that two additional railroad track lines extend across the Ford property, onto the docking facility to the east of the Pressed Steel Building and the Warehouse.

F. SPECIAL ISSUES

The original architectural drawings for the Ford Motor Company Assembly Plant, issued by the Kahn office, reveal an attitude toward architecture that seems at odds with the tremendous aesthetic quality of the finished building (CA-82-A-95 through CA-82-A-124). The drawings are brief, almost abbreviated. Although all details are indicated, they are more diagrammatic than one would expect from an architect of such stature. There is also a lack of corrections in the drawings. This is not to say the drawings are inaccurate, but rather reveal a sureness rarely seen in working drawings. Many architectural offices issue

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a dozen editions of the drawings, indicating layers of revisions and additions. Typically, the Kahn office issued two additions. Most likely a set was issued for construction bids, then corrected and clarified for a final construction set.

The quality of the drawings themselves does not reflect the quality of the buildings. The graphics are slightly crude, and the lettering is not consistent in style. They seem to have been done quickly, by many hands, few of which seem to have had classic training. The reputation of the firm was one of speed and profitability. The drawings seem to have been made quickly, by junior and intermediate draftsmen. However, they are accurate.

The drawings also suggest that Albert Kahn had worked out most of the architectural ideas in earlier projects. Since he had been hired by Henry Ford for the majority of his institutional work, he had solved the design problems of large spaces, light structures, and enormous mass and volume on other assignments. While many of the Ford projects could be thought to be "site adaptive" assignments, Kahn actually seems to have used each opportunity to improve the aesthetics of the plants. It would not be unusual for an industrial client to allow his architect some freedom with those elements of the plan that do not affect function and cost. For Kahn, one variable of the design with the biggest impact on the space is light. At Long Beach, Kahn's manipulation of light through the arrangement of the saw-tooth monitors, with almost entire walls opened to the sky in long spans of steel sash, and in the physical opening of the plant to the outside with roll-up doors in a majority of the bays of the structures, rendered this industrial space a place of enormous physical beauty.

The articulation of the structures, the rhythm of the structural system, and the patterns created by the structural connections, all brought into sharp focus by the raking light of the interiors, add depth to the overall perception of beauty. This plant, particularly in those areas of soaring heights and long vistas, compares favorably to earlier masterpieces of sacred architecture, particularly the greatest achievements of Gothic design.

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PART III SOURCES OF INFORMATION

See Part III Sources of Information, Ford Motor Company Long Beach Assembly Plant,
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